REMARKS

It is respectfully requested that this application be reconsidered in view of the above amendments and the following remarks and that all of the claims remaining in this application be allowed.

Amendments

The specification has been amended in the section titled "CROSS REFERENCE TO RELATED PATENT APPLICATIONS" to remove a confusing description of related patent applications and to reflect the proper priority claim as acknowledged by the Official Filing Receipt. In so doing the attorney docket number and the missing application number have been removed. In addition, the section titled "HARDWARE/SOFTWARE has been amended to include the incorporation by reference previously listed in the section titled "CROSS REFERENCE TO RELATED PATENT APPLICATIONS."

Claim 34 was amended, as suggested by the Examiner, to include a period to the end of the claim.

Claim 24 and 31 have been amended to reflect that the first and second cell types are different and to more clearly outline the steps of generating and evaluating the phenotypic representations of the cells.

No new matter has been presented by these amendments which are submitted solely to expedite the prosecution of what is believed to be allowable subject matter. Applications specifically reserve the right to file one or more continuation applications directed to the subject matter of the previously presented claims.

Entry of these amendments is earnestly solicited.

Election/Restriction

Applicants reiterate the traversal of the Election/Restriction. In the Office Action mailed on August 27, 2003, the Office indicated on page 2 in the second full paragraph, that "Applicant is required ... to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted of no generic claims is finally held to be allowable." Applicants chose neurodegenerative diseases, with traverse, as the species for searching purposes. Applicants are entitled to consideration of claims to additional species which are written in dependent form or otherwise include all of the limitation of an allowable generic claim.

Notwithstanding the present rejections by the Patent Office, Applicants note that claims 39-42, and 44-45, which were withdrawn from consideration by the Office, are dependent upon claim 31 and should be reinstated should Claim 31 and/or Claim 37 be determined to be patentable (either of which can be considered generic to the withdrawn claims).

Priority Claim

The present application is a divisional of U.S. Patent Application Serial Number 09/741,721, filed December 18, 2000, now issued as U.S. Patent No. 6,599,694. The claim for priority is acknowledged on the Official Filing Receipt. This application does not claim priority to the PCT applications listed in the section titled CROSS-REFERENCE TO RELATED PATENT APPLICATIONS, on page 1 of the specification. The present application is simply related in subject matter to these applications.

The description of this relationship has been removed from this section of the application to eliminate confusion. The references are now incorporated by reference in to the specification under the section titled "SOFTWARE/HARDWARE".

Rejections under 35 U.S.C. §102(b)

Claims 24-34 and 36-38 stand rejected under 35 U.S.C. §102(b), as allegedly being anticipated by Hofland et al. The rejection is respectfully traversed.

As repeatedly indicated by the courts, anticipation requires that all of the elements and limitations of the claim be found within a single prior art reference. There must be no difference between the claimed invention and the disclosure provided by the reference, as viewed by a person of ordinary skill in the field of the invention. (*Scripps Clinic & Research Fdtn. V. Genentech, Inc.*, 927 F.2d 1565, 1576 [Fed. Cir. 1991]). Furthermore, "[t]o establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art." (*In re Royka*, 490 F.2d 981, 180 USPQ 580 [CCPA 1974]). Applicant submits that Hofland does not teach every element of the claims; therefore, that the invention, as claimed herein, is not anticipated by Hofland.

The present invention, as claimed herein, relates to a method for quantitatively evaluating the effect of a potential therapeutic on different cell types that interact to produce or maintain a disease state or biological condition. During the process in which the cell types are exposed to a stimulus or agent, images of the cells are generated and quantified to provide a unique phenotypic "fingerprint" of each cell. The "fingerprint" is comprised of multiple scalar values of multi-dimensional cellular attributes, which are quantified in the context of specific cellular markers.

In a presently preferred embodiment, a quantitative phenotypic "fingerprint" of each cell is generated following the production of multiple digital images obtained throughout a given cell-agent interaction process. The quantitative phenotype may take the form of a group of scalar or vector descriptors which reflect two or more cellular attributes. These descriptors may represent parameters such as morphological values, composition, changes in a migration pattern, a growth rate, or a cell count. Phenotypic comparisons can then be made using a variety of algorithms comprising techniques for statistical classification, distance based clustering, regression analysis, or rule-based classification. Phylogenetic trees may also be created which demonstrate a statistical similarity between the fingerprints from various drugs.

Hofland describes an assay in which cells of choice are co-cultured, growth-stimulated using epidermal growth factor, and immunocytochemically stained. The evaluation of the presence of keratin (red-brown) and BudR (blue) is determined through visual analysis, as described in Figure 3.

Significantly, Hofland does not teach or suggest the creation of a phenotypic fingerpring comprising multi-dimensional cellular attributes that has been generated from multiple digital

images of cells, nor does Hofland teach the creation of a phylogenetic tree. Hofland also does not teach or suggest the use of a variety of algorithms to demonstrate statistical similarities between phenotypes. As the elements of Hofland are *not* the same as those claimed in the instant application, Applicant submits that Hofland does not anticipate the pending claims and respectfully requests that this rejection be withdrawn.

Claims 24-29, 31-34 and 36-38 stand rejected under 35 U.S.C. §102(b), as allegedly being anticipated by Stearns et al. The rejection is respectfully traversed.

Stearns is cited as demonstrating the visual light microscopic results of cell treatment showing the extent of induction of microvessel formation in angiogenesis in relation to number and length. Data analysis of results is limited to means and SE of the ELISA measurements of the amounts of TIMP-1 and MMP-2 production by tumor cell aggregates, in an inverse correlation with the extent of microvessel formation.

Stearns does not suggest or teach the creation of a phenotypic fingerprint generated from the digital images of cells, nor does Stearns teach the creation of a phlyogenetic tree. Stearns further does not suggest the use of algorithms to demonstrate statistical similarities between phenotypes. As the elements of Stearns are *not* the same as those claimed in the instant application, Applicant submits that Stearns does not anticipate the pending claims and respectfully requests that this rejection be withdrawn.

Claims 24-34, 36-38 and 43 stand rejected under 35 U.S.C. §102(b), as allegedly being anticipated by Zietlow et al. The rejection is respectfully traversed.

Zeitlow describes the methods for determining whether activated microglial cells have toxic or neuroprotective effects on neurons. Zeitlow is limited to methods of coculturing neurons with microglial cells in the presence of and activator, FMLP, which is known to effect only the microglial cells and not the neurons. The cocultures are assayed after 24 hours simply to determine whether the survival rates of the neurons.

Zietlow does not teach or suggest the creation of a phenotypic fingerpring using multi-dimensional cellular attributes generated from multiple digital images of cells, nor does Zeitlow teach the creation of a phlyogenetic tree. Zietlow also does not teach or suggest the use of a variety

of algorithms to demonstrate statistical similarities between phenotypes. As the elements of Zietlow are *not* the same as those claimed in the instant application, Applicant submits that Zietlow does not anticipate the pending claims and respectfully requests that this rejection be withdrawn.

In view of the above, Applicants submit that this application is now in condition for allowance. A notice to that effect is earnestly solicited.

CONCLUSION

If it is determined that a telephone conversation would expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number given below.

In the unlikely event that the transmittal letter is separated from this document and the Patent Office determines that an extension and/or other relief is required, Applicant(s) petition(s) for any required relief including extensions of time and authorizes the Assistant Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to **Deposit Account No. 50-1339** referencing docket no. 102012000310.

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Respectfully submitted,

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